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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/835,625	04/09/1997	EDWARD W. MOLL	M10043/20006	5281

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EXAMINER	
TWEEL JR, JOHN ALEXANDER	
ART UNIT	**PAPER NUMBER**
2636	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/835,625	MOLL, EDWARD W.	
	Examiner	Art Unit	
	John A. Tweel, Jr.	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,9,12,15,17,18,21,38,40,44,45,51,55 and 67-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,9,12,15,17,18,21,38,40,44,45,51,55 and 67-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Upon consideration of the Board of Appeals Decision of 3/31/04 and reconsideration of the application file history, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 9, 12, 15, 17, 21, 38, 40, 51, 55, and 67-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** [Business Wire, s1, p1, 6/16/95].

For claim 1, the apparatus for controlling a computer operation based on at least one stimulus sensed form a user taught by **Junker** includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by the thought of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, as for the identification means there is no evidence that the stimuli are compared to stored stimuli to identify a corresponding control function for a computer. Junker does store previous stimuli in connection with the control functions and upon sensing stimuli uses this stored data to perform the control. The specific comparison is not set forth in Junker.

The "mind-control" software described in the Smotroff reference is a software program that enables a user to control a computer program using a finger-mounted sensor that monitors heart, temperature, blood-pressure volume, and electrical activity in the brain and transmits that information to an interface that plugs into a PC-compatible computer, which analyzes the data it receives and translates it into computer signals. The MindDrive software recognizes the distinctive signals produced by different mental activity. This is plain evidence that signals have been recognized by

computer software and translated into information that the computer can recognize. Logically, the computer for later reference stores these stimuli patterns and the control functions are enacted based on the previously observed stimulus.

The system taught by Smotroff introduces a type of link between brain activity and computer control. This type of control is similar to the primary reference in that Junker also uses the sensing of brain activity to control a computer. The Smotroff reference compares brain stimuli to stored stimuli and performs the corresponding function. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate storing the data as computer functions similar to MindDrive for the purpose of utilizing a standard operating system that easily recognizes different input for different computer control.

For claim 4, the claimed auxiliary stimuli input means for providing additional or alternative stimuli inputs from the user is met by the EEG and EMG biopotentials of Junker that are correlated to control of the device.

For claim 9, the claimed communicating means coupled to the computer is met by the processing unit (No. 30) and the input/output bus (No. 57) of Junker which communicates information pertaining to the user's thoughts.

For claim 12, the claimed designating means coupled to the function selection means is met by the menu bar (No. 60) seen in Figure 6 of Junker that designates particular representations of the different stimuli.

For claim 15, the claimed conditioning means for conditioning the stimulus is met by the amplifier and filter system (No. 24) that amplifies and band pass filters the brain-body signals.

For claim 17, the claimed database for storing inaccuracies is met by the data store (No. 19) that stores the current sample of the input signals and vector quadrature values corresponding to the previously stored control signals as detailed in the explanation of the phase-locked loop program to set a control frequency selected by the user.

For claim 21, the claimed stimuli selection means is observed in Figure 5 that depicts acceptance criteria (magnitude, phase, frequency shift) to form previously-stored user stimuli.

For claim 38, the claimed means for detecting coactive stimuli is met by the multiple input devices such as the EEG electrodes (No. 22) and the other input devices (No. 20) such as the keyboard, mouse, and other input means.

For claim 40, the claimed means for detecting sequential stimuli is met by the control signal generation program that reads sequential sampled brain-body signals (Step 404) through a series of iterations, from one up to 1600.

For claim 51, the claimed bodily communication means to provide for a communication path for at least one stimulus between the user's brain and body part is met by the aforementioned electrodes (No. 22) that comprise a communication channel between the operator's brain-body signals and various external devices (No. 55) such as a wheel chair, cursor control, sailboat or other ambulatory devices.

For claim 55, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an explicit identification means for identifying one or more said detected stimuli or receiving means for receiving a function signal.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 67, the apparatus for controlling a computer operation based on at least one stimulus sensed from a user taught by Junker includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by the thought activity of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, as for the identification means there is no evidence that the stimuli are compared to stored stimuli to identify a corresponding control function for a

computer. Junker does store previous stimuli in connection with the control functions and upon sensing stimuli uses this stored data to perform the control. The specific comparison is not set forth in Junker.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 68, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an identification means for identifying the stimuli as corresponding to a function and a receiving means for receiving a function control signal to control the computer operation.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 69, the apparatus for controlling a computer operation based on at least one stimulus sensed from a user taught by Junker includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by mental activity of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing

said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, there is no identification means for comparing the stimulus to identify a function control signal.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 70, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an identification means for identifying the stimuli as corresponding to a function and a receiving means for receiving a function control signal to control the computer operation.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Kuc et al**.

For claim 2, the combination of references includes the claimed subject matter as noted in the rejection of claim 1 above. However, neither reference is there biomagnetic stimuli input means.

The biomedical magnetism imaging apparatus and method taught by Kuc et al performs biomagnetic imaging to determine the location and intensity of current sources within a subject by sensing the magnetic field within the subject. This is accomplished using a number of Superconducting Quantum Interference Devices (SQUIDs) that are fed magnetic field information using pickup coils (No. 4). One great advantage of this invention is the fact that fewer pickup coils and SQUID magnetometers are needed to gather needed information in a lesser amount of time than previous biomagnetometers. Also, input from multiple dipoles can be displayed simultaneously.

As the system of Junker utilizes bio-imaging means to achieve its purposes, it presents the perfect platform onto which an imaging system such as Kuc may be applied. As EEG and EMG signals are already gathered, the MSI data could easily be examined for the same purposes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate and MSI system similar to Kuc into the brain-body actuated system of Junker for the purpose of gathering vital information using fewer pickup coils in a lesser amount of time.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Hartzell et al**.

For claim 18, the combination of references above includes the claimed subject matter as discussed in the rejection of claim 1 above. However, one feature that neither reference teaches is that the apparatus can be used by a plurality of users. Also a database for storing unique stimuli for respective users is also not included.

The brainwave-responsive apparatus taught by **Hartzell** teaches an apparatus that is for use with one or more subjects simultaneously for causing an output device to perform productive functions. The system consists of one or more EEG detectors (Nos. 10a-n) each having input lines (No. 12) from a plurality of user. The EEG detectors are designed to generate output signals corresponding to different brain waves to provide signals or actually controlling an output device (No. 30). The EEG devices also store unique stimuli depending on the user's brainwaves onto conventional strip chart recorders or magnetic tape. One advantage of this system is the fact that a productive function is performed using empathy training whereby two or more subjects may be trained to produce theta waves, either simultaneously or synchronously. Also elderly subjects can be trained to provide beta brainwaves on command.

Since both Junker and Hartzell et al both pertain to brainwave controlled apparatus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the system of Junker to be used by a plurality of users and for storing user unique stimuli for the purpose of accomplishing and recording productive tasks through the use of simultaneous or synchronous activation through multiple users. Also, the benefits to the elderly and children should not be overlooked.

6. Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Adachi**.

For claim 44, the combination of references above includes the claimed subject matter as noted in the rejection of claim 1 above. However, the reference does not cite localization means for identifying locations in the source of said stimulus.

The device for measuring a retina reflected light amount and a gaze detecting apparatus using the same taught by Adachi includes a series of measuring devices (Nos. 11-14) are fixedly arranged at four corner positions of a monitor device. Each device includes a laser (No. 111), semitransparent mirror (No. 113), and charge couple device (CCD) (No. 114) that receives infrared rays emitted by the laser and reflected by the face of the person. An intersection point P among all four devices indicates the location and orientation of the pupil of the person. The retina characteristics are continually monitored to calculate the differing pupil position and displacement angles. The claimed localization means is met by the display device (No. 4) of Adachi that identifies on the display the location in the user of the source of the stimulus. One obvious application of this technology is the control of a cursor on a computer monitor in lieu of the up- and down- keys of a keyboard. This particular reference combines a high level of accuracy at a decreased cost from other retina position detectors.

Since all three references pertain to biologically inputted devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a means for detecting movement of the user's eye to initiate a control signal for

the purpose of using the eye as an easy and inexpensive way to manipulate the cursor controller around the monitor output.

For claim 45, the aforementioned measurement devices also meet the adapting means for they adapt the display to change in response to a change in the location (eye movement) of the source.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Atwood [Billboard, 10/5/96] describes the MindDrive system with its control and playback of music.

Johnson [Electronic Engineering Times, 9/30/96. p. 49] further describes the MindDrive system by decoding a "thought vocabulary" of six words.

Nemirovski et al [U.S. 6,024,700] detects thoughts using air pressure near a human ear.

Wolpaw et al [U.S. 5,638,826] contemplates that brain waves can control a cursor video monitor or other such device.

Newman et al [U.S. 5,844,824] involves a body-worn, hands-free computer system.

Gershenfeld et al [U.S. 5,914,701] produces modulated signals from externally induced intra-body currents.

Edwards [GB 2 220 089A] enables an individual to communicate messages by means of that individual's brain activity.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Tweel, Jr. whose telephone number is 703 308 7826. The examiner can normally be reached on M-F 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Hofsass can be reached on 703 305 4717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT
7/29/04

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